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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/537,079	06/01/2005	Brita Diego	FE 6106+6085 (US)	8247

34872 7590 03/13/2007  
BASELL USA INC.  
INTELLECTUAL PROPERTY  
912 APPLETON ROAD  
ELKTON, MD 21921

EXAMINER
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MCDONOUGH, JAMES E

ART UNIT	PAPER NUMBER
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1755

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/13/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/537,079

Applicant(s)

DIEGO ET AL.

Examiner

James E. McDonough

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 2,3,7 and 18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 4-6, 8-17, and 19-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

(1) Applicant's arguments, see pages 2-10 and page 11, paragraphs 1-2, filed 1/3/2007, with respect to the oath or declaration, the abstract, and claims 1-30 have been fully considered and are persuasive.

#### ***New Rejection***

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 4-6, 8-13 and 19-30 rejected under 35 U.S.C. 103(a) as being unpatentable over Yang et al., USP 6,034,025.

Yang et al. teaches a method of producing a catalyst for the polymerization of olefins. Whereby, magnesium halide is contacted in solution with a mixture of a cyclic ether and alcohols which can be further reacted with a titanium (group 4 metal)

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compound forming a solid precipitate (abstract), polymerization of  $\alpha$ -olefins (ethylene and propylene) (column 2, lines 42-44), methanol and ethanol as the alcohols and THF (tetrahydrofuran) as the cyclic ether having from 0.5-20 equivalents of alcohol and 0.5-20 equivalents of Lewis base (THF) per mole of magnesium compound (column 3, lines 45-64), reacting with an organoaluminum compound (column 6, lines 7-22), and exemplifies Magnesium chloride ( $\text{MgCl}_2$ ) (column 7, line 50).

Although, Yang et al. does not explicitly state that his Lewis adduct is solid, however, his composition appears identical to that of the instant application and if the composition of the instant application is solid then it would be obvious to someone of ordinary skill in the art that an identical composition from the reference would also be expected to be solid (again being in solution does not prevent a compound from being solid).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the parameters of the catalyst such as the ratio of alcohol/Lewis base relative to magnesium to achieve a desired result. It is well-settled that optimizing a result effective variable is well within the expected ability of a person of ordinary skill in the subject art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980), In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1955).

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Claims 1, 4-6, 8-13 and 19-30 rejected under 35 U.S.C. 103(a) as being unpatentable over Iiskolan et al., USP 6,034,025.

Iiskolan et al. teaches solid catalyst components for the polymerization of  $\alpha$ -olefins (abstract), a catalyst formed by contacting  $\text{MgCl}_2$  with EtOH (alcohol), diisobutylphthalate (Lewis Base, alkyl ester of carboxylic acid), ratio of magnesium:alcohol:Lewis base equals 1:3:0.1, contacting with  $\text{TiCl}_4$  and triethylaluminum (column 5, line 58 to column 6, line 39) the reference further teaches the alcohol can range from 1-6 equivalents per magnesium (column 10 lines 38-40) and gives examples of 1 Mg per 3.7 EtOH (column 8, line 8) and 1 Mg per 2.9 EtOH (column 8, line 62).

Although, Iiskolan does not explicitly teach using 2.5 ROH per Mg, Iiskolan does disclose a range that encompasses 2.5 ROH per Mg, it would have been obvious to someone of ordinary skill in the art at the time the invention was made to vary the ratio of reagent within the stated range of feasibility.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the parameters of the catalyst such as the ratio of alcohol/Lewis base relative to magnesium to achieve a desired result. It is well-settled that optimizing a result effective variable is well within the expected ability of a person of ordinary skill in the subject art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980), In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1955).

***Original rejection***

8. Claims 1, 4-6, 8-13 and 19-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Yang et al., USP 6,034,025 (hereafter referred to as Yang).

Yang discloses the invention as claimed (abstract; col. 3, 1. 45 to col. 4, 1. 59).

9. Claims 1, 4-6, 8-13 and 19-30 are rejected under 35 U.S.C. 102(b) as being anticipated by liskolan et al., USP 4,829,034 (hereafter referred to as liskolan).

liskolan discloses the invention as claimed (col. 5-6, example 1).

10. Claims 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over liskolan in view of Yang, both as cited above. The disclosure of liskolan has been discussed above.

liskolan lacks in its example 1 the use of a further solvent or the direct combination of the magnesium halide/alcohol adduct with a further Lewis base.

However, Yang at col. 4, 1. 22-30, teaches that the combination of the various ingredients that go to make up a magnesium chloride adduct support may conventionally occur in an inert hydrocarbon solvent., and since the alcohols of Yang and liskolan are already Lewis bases, the addition of a further Lewis base would have been conventional to the routineer in the art. It would have been obvious to one of ordinary skill in the art to apply the teaching of Yang to the disclosure of liskolan with a reasonable expectation of obtaining a highly-useful method of making a magnesium

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chloride adduct with the expected benefit of being able to obtain finer particle sizes by breaking up the product by stirring in solution as it is made.

### ***Response to arguments***

Applicants argue against 102(b) rejection of Yang et al. stating that it is incumbent upon the examiner to identify wherein each and every facet of the claimed invention is disclosed in the applied reference by page and line number.

This is found not persuasive because Yang et al. teaches a method of producing a catalyst for the polymerization of olefins. Whereby, magnesium halide is contacted in solution with a mixture of a cyclic ether and alcohols which can be further reacted with a titanium (group 4 metal) compound forming a solid precipitate (abstract), polymerization of  $\alpha$ -olefins (ethylene and propylene) (column 2, lines 42-44), methanol and ethanol as the alcohols and THF (tetrahydrofuran) as the cyclic ether having from 0.5-20 equivalents of alcohol and 0.5-20 equivalents of Lewis base (THF) per mole of magnesium compound (column 3, lines 45-64), reacting with an organoaluminum compound (column 6, lines 7-22), and exemplifies Magnesium chloride ( $\text{MgCl}_2$ ) (column 7, line 50).

Applicants argue against 102(b) rejection of Yang et al. stating that it does not disclose, teach, or suggest solid Lewis adducts comprising  $\text{MgCl}_2$ , a Lewis Base selected from ethers....., and an alcohol, which compounds are in molar ratios to each other defined by the following formula  $\text{MgCl}_2(\text{ROH})_m(\text{LB})_n$  in which m ranges from 0.5-

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2.5 and n ranges from 0.07-6, with compounds of transition metals belonging to groups 4-6 of the periodic table, and that Yang et al. fails to teach catalyst system for the polymerization of  $\alpha$ -olefins obtained by contacting a catalyst component with at least one organoaluminum compound.

This is found not persuasive because as stated above Yang et al. teaches these components in a catalyst system.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the parameters of the catalyst such as the ratio of alcohol/Lewis base relative to magnesium to achieve a desired result. It is well-settled that optimizing a result effective variable is well within the expected ability of a person of ordinary skill in the subject art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980), In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1955).

Applicants argue Yang et al. teaches a magnesium compound in solution

This is found not persuasive because being in solution does not prevent a compound from being solid (i.e. glucose does not stop being solid because it is dissolved in water).

Applicants argue against 102(b) rejection of Iiskolan et al. stating that it is incumbent upon the examiner to identify wherein each and every facet of the claimed invention is disclosed in the applied reference by page and line number.



This is found not persuasive because liskolan et al. teaches solid catalyst components for the polymerization of  $\alpha$ -olefins (abstract), a catalyst formed by contacting  $\text{MgCl}_2$  with EtOH (alcohol), diisobutylphthalate (Lewis Base, alkyl ester of carboxylic acid), ratio of magnesium:alcohol:Lewis base equals 1:3:0.1, contacting with  $\text{TiCl}_4$  and triethylaluminum (column 5, line 58 to column 6, line 39) the reference further teaches the alcohol can range from 1-6 equivalents per magnesium (column 10 lines 38-40) and gives examples of 1 Mg per 3.7 EtOH (column 8, line 8) and 1 Mg per 2.9 EtOH (column 8, line 62).

Applicants argue against 102(b) rejection of liskolan et al. stating that it does not disclose, teach, or suggest solid Lewis adducts comprising  $\text{MgCl}_2$ , a Lewis Base selected from ethers....., and an alcohol, which compounds are in molar ratios to each other defined by the following formula  $\text{MgCl}_2(\text{ROH})_m(\text{LB})_n$  in which m ranges from 0.5-2.5 and n ranges from 0.07-6, with compounds of transition metals belonging to groups 4-6 of the periodic table, and that Yang et al. fails to teach catalyst system for the polymerization of  $\alpha$ -olefins obtained by contacting a catalyst component with at least one organoaluminum compound.

This is found not persuasive because as stated above liskolan et al. teaches these components in a catalyst system.

Applicants argue against 102(b) rejection of liskolan et al. stating that it does not disclose, teach, or suggest the ratios claimed in the instant application and that liskolan

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examples all teach the ratio of alcohol to magnesium being at least 2.9 and that "if claims are directed towards a narrow range and the reference teaches a broad range....it may be reasonable to conclude that the narrow range is not disclosed with 'sufficient specificity' to constitute an anticipation of the claims" and any evidence of unexpected results within the narrow range may also render the claims unobvious.

This is found not persuasive because the reference teaches ranges that clearly overlap that of the instant application. Furthermore, applicants had this exact range in their original claims.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the parameters of the catalyst such as the ratio of alcohol/Lewis base relative to magnesium to achieve a desired result. It is well-settled that optimizing a result effective variable is well within the expected ability of a person of ordinary skill in the subject art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980), In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1955).

Applicants argue the validity of the 103 rejection of Yang et al. and Iiskolan et al.. Response to arguments for Yang et al. and Iiskolan et al. *supra* are incorporated herein by reference in their entirety.

Applicants argue unexpected results in the activity of their catalyst. Applicants state that the catalyst of Iiskolan has an activity of 5.7-9.9 Kg/g and in the instant application the activity is 9.3-107.6 Kg/g. This is found not persuasive however,

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because the reference of liskolan teaches an activity of 345 Kg/g (column 6, lines 62-63).

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

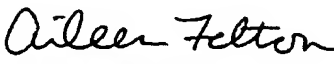
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James E. McDonough whose telephone number is (571)272-6398. The examiner can normally be reached on 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on (571)272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JEM 3/2/2007

  
AILEEN FELTON  
PRIMARY EXAMINER